Claims

1. An organic electroluminescent device comprising in sequence an anode, a first emitting layer, a carrier barrier layer, a second emitting layer and a cathode stacked;

wherein the ionization potential of the carrier barrier layer is more than the ionization potential of the first emitting layer by 0.1 eV or more and the affinity level of the carrier barrier layer is less than the affinity levels of the first emitting layer and the second emitting layer by 0.1 eV or more.

2. The organic electroluminescent device according to claim 1, wherein the ionization potential of the carrier barrier layer is more than the ionization potential of the first emitting layer by 0.2 eV or more and the affinity level of the carrier barrier layer is less than the affinity levels of the first emitting layer and the second emitting layer by 0.2 eV or more.

3. An organic electroluminescent device comprising in sequence an anode, a first emitting layer, a first carrier barrier layer, a second carrier barrier layer, a second emitting layer and a cathode stacked;

wherein the ionization potential of the first carrier barrier layer is more than the ionization potential of the first emitting layer by 0.1 eV or more and the affinity level of the second carrier barrier layer is less than the affinity level of the second emitting layer by 0.1 eV or more.

4. The organic electroluminescent device according to claim 3, wherein the ionization potential of the first carrier barrier

layer is more than the ionization potential of the first emitting layer by 0.2 eV or more and the affinity level of the second carrier barrier layer is less than the affinity level of the second emitting layer by 0.2 eV or more.

5. The organic electroluminescent device according to claim 1 or 3, wherein the first emitting layer comprises a first dopant for a first emission color and the second emitting layer comprises a second dopant for a second emission color.

6. The organic electroluminescent device according to claim 5, wherein at least one carrier barrier layer comprises a third dopant for a third emission color.

7. The organic electroluminescent device according to claim 6, wherein the first, second and third dopants are selected from blue, green or red.

8. The organic electroluminescent device according to claim 1 or 3, wherein the first emitting layer emits blue or red light.

9. The organic electroluminescent device according to claim 1 or 3, wherein the second emitting layer emits blue or red light.

10. The organic electroluminescent device according to claim 1 or 3, wherein one of the first emitting layer and the second emitting layer emits blue light, and the other emitting layer emits red light.

11. The organic electroluminescent device according to claim 1 or

3, wherein the first emitting layer comprises a hole-transporting material and the second emitting layer comprises an electron-transporting material.

12. The organic electroluminescent device according to claim 11, wherein the hole mobility of the first emitting layer is 10^{-5} $cm^2/v \cdot s$ or more and the electron mobility of the second emitting layer is 10^{-6} $cm^2/v \cdot s$ or more.

13. The organic electroluminescent device of claim 1 or 3 that emits white light.